

U.S. Rural electrification administration
UNITED STATES DEPARTMENT OF AGRICULTURE
RURAL ELECTRIFICATION ADMINISTRATION

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PRE-ALLOCATION DATA FOR GENERATION AND TRANSMISSION FACILITIES

It is the policy of REA not to approve loans for generating plants and transmission facilities except where such facilities are clearly needed to provide an adequate supply of power or to effect a saving in cost.

All applications for this type of loan must be supported by competent evidence that either or both of these conditions exist. Pre-allocation studies in support of loans for generation or transmission systems should therefore contain documentation covering existing or anticipated deficiencies of the present sources of supply as well as detailed competent studies showing the economic advantages and feasibility of the proposed facilities.

The initial steps of the procedure leading to the preparation of a pre-allocation study are as follows:

- (1) After giving preliminary consideration to the problems involved, a borrower or group of borrowers should submit to REA, Form AL-82, (Summary of Application for Generating Plant Allocation). It is understood that the data supplied on this form are not based upon a detailed study, but merely indicate the approximate size of plant facilities that may be required and their estimated cost.
- (2) After an analysis of AL-82, REA will advise the borrower regarding the results of this analysis of the proposed system and regarding the selection of an engineer, if an engineering study is necessary.
- (3) If it is deemed necessary to have an engineering study prepared, the borrower should then select an engineer in accordance with established procedures.
- (4) After its approval of an engineer, REA will advise the engineer and the borrower regarding the procurement of estimates of future power requirements and the detailed requirements of the pre-allocation engineering study.

The cost of the pre-allocation study in support of a loan for generation or transmission facilities, particularly new GT systems, would be paid from general funds of the borrower. If an allocation of REA funds is later made to construct the facilities, the amount approved for preparation of the study will be provided in the allocation for reimbursement of the general fund account.

All of the data called for in the following outline of a pre-allocation study may not be required in all cases. When doubt exists as to the applicability of all of the data, REA should be consulted by the borrower or its engineer. The outline as prepared would apply primarily to borrowers requesting funds for initial installations.

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OUTLINE OF PRE-ALLOCATION STUDY

General Data

I. Scope of Proposed Development.

- (A) List borrower(s) to receive power from the proposed facilities.
- (B) Area involved.
- (C) Show load data projected for two, five and ten years; location of load centers or delivery points; power requirements at each delivery point. (This information will be furnished the engineer by the borrower with assistance from REA).

II. Present Source of Wholesale Power Supply.

- (A) List present power suppliers and average cost of purchased power.
 - (a) List present points of delivery for power and expiration dates of present contracts.
 - (b) Include copies of correspondence or conference memoranda on price negotiations covering all negotiations to obtain lower rates and additional sources of power supply.
 - (c) Describe any objectionable features included in existing or proposed power contracts.
- (B) Nature of Present Service.
 - (a) Record of outages. Give date, duration of each outage, cause of outage, record of complaints registered (copies of letters or memoranda of conferences or conversations). Report on the ability or willingness of supplier to improve service.
 - (b) Low Voltage. Describe any fluctuations of supply voltages. Submit recordings if available.
 - (c) Condition of suppliers' facilities. Describe the present facilities; capabilities of present facilities and possibilities of improvement; record of any correspondence, conversations and conferences with the supplier indicating if improvement can be expected and approximate dates.
- (C) Adequacy of Power Supply.
 - (a) What is the number of kilowatts guaranteed under present contract and what is the term of the contract? Is the amount of guaranteed power sufficient? What is the present maximum demand and has the contract demand been exceeded?

- (b) Ability of suppliers to make firm commitments for amounts of kilowatt capacity needed. Copies of correspondence with suppliers in connection with supplying more power.
- (c) Expansion of suppliers' facilities - when?
- (d) Federal Power Commission's report on power in the area.
- (D) Power Availability.
 - (a) Evidence, such as correspondence or memoranda of conversations or conferences, showing whether nearby power facilities have power for sale and are willing to sell power to the cooperatives.

III. Individual Borrower Transmission Lines.

- (A) Have the distribution borrowers already been required to construct transmission lines to load centers together with substations?
- (B) What is the estimated cost of transmission lines and substations which will have to be constructed to the ultimate load centers by distribution borrowers if the facilities included in this application are not constructed?
- (C) What is the estimated savings in cost of distribution system improvements which will be effected if the proposed transmission facilities included in this application are constructed?

Engineering Data

I. Fuel Investigation

- (A) Present prices of oil and coal; and BTU content. (Prices should be f.o.b. origin plus truck, water or rail transportation costs, if applicable).
- (B) Present and future availability and cost of natural gas (for both firm and interruptible service).
- (C) Hydro potentialities.

II. Investigation of present and future availability of government plants and transmission lines (Bureau of Reclamation, SPA, Army Engineers, etc.).

III. Comparison of Basic Plans. (It is impossible to outline what the basic plans should consist of; it will be different for each system. In some cases, only one plan will be necessary; in other cases, more than two will be required). Generally, the following should be considered.

- (A) Multiple Plant System versus Single Plant System.

(B) Combination Plants: Diesel-steam; Steam hydro; Diesel-hydro.

(C) Combination: Purchase and generation or transmission.

It is usually sufficient to compare basic plans for ultimate loads only. In determining the recommended plan, the following should be considered.

- (1) Cost of power delivered to distribution borrowers' load centers.
- (2) Total investment required.
- (3) Reliability of service.
- (4) Without detailed analysis, does the recommended plan suit the requirements of the initial loads and intermediate loads?

It is recommended that the engineer not proceed with the detailed work listed below until he has fully discussed all of the foregoing with the interested divisions of REA and has obtained REA approval to proceed. Personal conferences are suggested.

IV. Recommended Plan - if one plan indicates superiority over others for the ultimate loads, this plan should be developed in detail as follows. In some cases it may be necessary to develop all or a portion of the following for more than one plan.

- (A) Plant Location - transportation facilities, housing for plant personnel, water supply, proximity to gas lines, relation to load center, foundation considerations (especially for steam) etc.
- (B) Justification of Voltage Levels - voltage regulation study, analysis of losses, investment, etc.
- (C) Sequence of Additions - a schedule of necessary additions of generating units, transmission lines, substations, switching stations, etc.,--related to specific years of load growth, from initial installation to ultimate installation.
- (D) Estimates of Investment - these estimates should tie in with the facilities shown in (C) above, and should separate generating plants, transmission lines, substations, etc. It should be further detailed to generally conform with the 300 series of the FPC Uniform System of Accounts. Special construction features should be explained.
- (E) Estimates of Yearly Expenses - this should be a tabulation covering yearly expenses and cost of energy at the substations for the initial year, the ultimate year and at least one intermediate year. Separate costs should be given for the transmission system and for each plant. Other years should be included if necessary to provide comprehensive information on anticipated costs of power.

- (F) Map or Maps - these should show pertinent existing and all proposed transmission lines, substations and power plants. The map should differentiate between initial, intermediate and ultimate construction.
- (G) Appendices - these should be included, if necessary, to show typical calculations, load curves, load duration curves, graphical presentations of data, etc.

V. Hydro Plants - where a hydro development to be constructed with REA funds is a part of the study, a separate report prepared by a competent hydroelectric engineer is required. Prior to the preparation of this report, a compilation of available published data (U. S. C. S., Army Engineers, etc.) should be made and submitted to REA together with a recommended plan to further investigation. In general, the final report will contain the following items:

- (A) A hydrological study, including stream flow data and variation, together with hydrographs and duration curves and an analysis of the effect of storage and pondage on stream flow.
- (B) A study of the topography of the site, including in some cases a topographical map and geological studies locating dams, power plant, flow lines, roadways, etc.
- (C) An analysis of existing prior water rights and their effect on proposed use of stream; an analysis of required legal actions to be taken by the borrowers, including land procurement, water rights, licenses, regulatory body approvals, etc.
- (D) Recommendations of type and size of generating units, taking into consideration the present and future total power requirements of the system and the present and future sources of supply, including the construction of future fuel burning plants.
- (E) An estimate of the required total investment, detailed in some cases in accordance with FPC system of accounts and including land, water rights, licenses, etc.
- (F) An estimate of the cost of energy delivered to the system for the years given in IV (E), above, including an analysis of the ability of the system to absorb the hydro output considered, taking into consideration natural pondage and storage and such additional pondage and storage as may be recommended for construction.

